**3GPP TSG SA WG4#123 S4-S4-230591r1**

**Emeeting, 17-21 APRIL 2023**

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| *CR-Form-v12.0* | | | | | | | | |
| **PSEUDO CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26**.**119-PD** | **CR** | **pseudo** | **rev** | **-** | **Current version:** | **5.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | **[MeCAR] Updates to Device definition rev1** | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Tencent | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | **MeCAR** | | | | |  | ***Date:*** | | | 2023-04-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | 18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | The current architecture does not define the API’s clears. Also, the illustration of IF interfaces with bars are vague. The proposed update uses the 5GMS architecture legends for APIs and lines for interfaces. | | | | | | | | |
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| ***Summary of change:*** | | Implements the above | | | | | | | | |
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| ***Consequences if not approved:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.1.1 and 4.1.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**===== CHANGE =====**

# 4 Device categories

## 4.1 Candidate XR Baseline Client

### 4.1.1 General

The XR Baseline Client represents the functionalities, the peripherals, and the interfaces that are present on a generic XR UE. The actual device may be realized by a single device, or a combination of devices linked together. The details on how to instantiate an XR Baseline Client in the context of a service or deployment scenario is left for the respective Work Items and Study Items to define.

In terms of functionalities, an XR Baseline Client is composed of:

* **An XR application**: a software application that integrates audio-visual content into the user’s real-world environment
* An **XR Runtime**: a set of functions that interface with a platform to perform commonly required operations, such as accessing the controller/peripheral state, getting current and/or predicted tracking positions, performing spatial computing, as well as submitting rendered frames to the display processing unit and rendered audio to the speakers with a late stage re-projection to the latest pose.
* An **XR Source Management**: management of data sources provided through the XR runtime such as microphones, cameras, trackers, etc, for instance, making the information available to the ***XR application*** or providing it to the ***MAF*** for sending in the uplink.
* A **Media Access Function**: A set of functions that enables access to media and other XR-related data that is needed in the ***Scene manager*** or ***XR Runtime*** to provide an XR experience as well to create delivery formats for information provided by the ***XR Source Management***.
* A **Scene Manager**: a set of functions that supports the application in arranging the logical and spatial representation of a multisensorial scene based on support from the ***XR Runtime***.
* A **Presentation Engine**: a set of composite renderers, rendering the component of the scenes, based on the input from the Scene Manager.
* A **Media Session Handler**: a set of functions responsible for handling all 5G control plane operations, such as requesting network assistance, discovering and allocating edge resources, etc. This may be realized as a 5G-RTC MSH, 5GMS Media Session Handler, or any other function

In addition, those functional blocks are integrated together via interfaces. Interfaces may be made of APIs and/or data formats and collectively act as a contract between the two sides of the interface.

The XR Baseline Client contains the following interfaces:

Editor’s Note: The renumbering was done to align IF-4, IF-5, IF-6, IF-7 and IF-8 with 5GMS interfaces

* **IF-1** lies between the XR Runtime on one side and the XR Source Management and the Presentation Engine. IF-1 is implemented as an API-1 that exposes functions provided by the XR Runtime. An example of this API is the Khronos OpenXR API.
* **IF-2** describes the functions exposed by the XR Source Management that can be accessed and controlled by the XR application, or possibly other functions in the device. IF-2 is typically implemented as an API.
* **IF-3** lies between the XR Source Management and the Media Access Function and provides serialized information accessible on XR Runtime to the MAF.
* **IF-4** lies between the Media Access Function and the 5G System for user plane data.
* **IF-5** lies between the UE and the 5G System, implementing control sessions (such as 5G Media Streaming, IMS). This interface provides for instance the functionality of the RTC-5 interface as defined by TS26.506.
* **IF-6** lies between the Media Session Handler and the Application/MAF. It offers the tools for them to activate 5G media functionality such as network assistance and edge resource discovery. The IF-8 is realized through an API.
* **IF-7** lies between the XR Application and the Media Access function to configure Media Access. This is typically implemented as an API that exposes functions of the MAF.
* **IF-8** is an interface that allows the XR application to make use of 5G System connectivity.
* **IF-9** lies between the Scene Manager and the Media Access Function.
* **IF-10** lies between the Scene Manager and the XR Application.

### 4.1.2 Architecture

Une image contenant diagramme

Description générée automatiquement